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ABSTRACT

Computer software programs designed to develop or increase musical skills in middle and secondary school students are reviewed in this document. These programs are not designed to be used instead of regular music instruction, but rather to supplement it. Each product review contains the producer, necessary hardware, optimal hardware, price, intended audience, description, and evaluation. The following products are reviewed: CAMUS Melodic Dictation; Harmonious Dictator; Internal Drillmaster; Melodious Dictator; Music FUNdamentals 1, 2, & 3; Music Shapes; Music Theory; Note Blaster; Practical Music Theory, Complete; Sir William Wrong Note version 2; Sketch the Scale version 2.0; and Theory Sampler. (DB)

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THE Northwest Regional Educational Laboratory

# TECHNOLOGY PROGRAM

ED 362 422

# MUSIC EDUCATION SOFTWARE

## A CRITICAL REVIEW OF PRODUCTS

Zita Pǫdany

August 1990

A MicroSIFT Report

U.S. DEPARTMENT OF EDUCATION
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# INTRODUCTION

This report focuses on software designed to develop or increase musical skills in middle and secondary school students. Packages were included in this report if the primary intent of the software was toward music instruction and if the publisher was willing to submit the program for review.

These programs are not designed to be used instead of regular music instruction, but rather as supplements to it. Music programs can assist in improving certain trouble areas students may be experiencing or to provide additional practice when a tutor or teacher is not available to monitor student performance or provide immediate feedback. In most instances, if a student experiences trouble during a practice session, the problem areas must wait until the next music lesson.

With a computer tutor, students can practice musical phrases and the computer will monitor how well they played it in relation to specific lesson objectives. However, a computer keyboard is not a piano keyboard and students can acquire bad fingering habits which may later translate to the piano keyboard. It is recommended that teachers try out all aspects of the software and provide necessary preliminary instructions to the student.

All the programs use sound in one way or another. In most instances they utilize the computer's own internal speakers. This may or may not produce audible or clear sounds. In many cases the sounds produced by the computer are not easily discernible. Since the Apple's internal speaker produces only monophonic sound, some software may require external speakers, a mini DAC board, or a MIDI synthesizer capable of multi-voice sound.

# PRODUCT DESCRIPTIONS

## CAMUS Melodic Dictation

| | |
|---|---|
| **Producer:** | Conduit |
| **Hardware:** | Apple II Plus, IIe, IIc, 64K, IBM |
| **Optional Hardware:** | Mountain Music Synthesizer |
| **Price:** | Disk # 1, 2, 3, 4 $50.00 each; Set (disks #1-4) $150.00 |
| **Audience:** | Grades 9-16 |

**Description:** *CAMUS, Computer Assisted Music Units in Solfege*, contains several packages, one of which is *Melodic Dictations*. Materials are based on the Solfege musical method which teaches three skills: reading, hearing, and writing.

Programs cannot be copied, but Conduit provides a back-up copy of each disk in the package. *Melodic Dictations* contains four disks (plus four back-up disks) covering several levels of difficulty. Each disk contains 10 groups of dictations written by the author.

The purpose of this package is to train the ear to recognize musical sounds in relation to musical notation. *Dictations* addresses a number of different aural discrimination problems such as the recognition of particular intervals, rhythmic intricacies, and mode colors, i.e., Major, harmonic, and melodic Minor. The student must listen to then duplicate the dictation by noting it on a computer staff.

Disk 1 dictations are designed for high school or university students with little experience in ear training. Disks 2 and 3 introduce more complex concepts in rhythmic notation, chromaticism, and modulation. Disk 4 is designed for more advanced music students and contains difficult melodies of up to 18 notes long which are primarily atonal. Disks can be used in any order, and students are not required to pass certain levels before attempting other levels.

Keyboard labels designating which computer keys play certain notes are included with the package. However, since most schools share computers, affixing labels to computer keys might not be a good idea.

An on-line help screen identifying the navigable commands is available. Abbreviated forms of these commands also appear during the dictations.

A student can select any set of dictations from those available on the disk. Upon choosing a specific dictation, the computer will play it. The student then may note the dictation, have it repeated, listen to its tempo or listen to the A pitch. (This pitch, 440 Hz, is commonly used for tuning.)

The program evaluates student work according to four criteria: rhythm (duration of each note), length (number of notes), intervals, and pitch (pitch and alteration of notes).

**Evaluation:** This is an excellent ear training package. If students have been trained with the Solfege system, i.e., 1 = C, 2 = D, etc., notation on this program, which follows the same format, is not difficult to grasp. Bar line and dot placement on the other hand, take a little trial and error to get used to. Dots in particular are also not very visible on the screen. By the same token, in the evaluation/answer screen, mistakes are not easily discernible.

The program is very easy to use despite the need to memorize which keys represent which notes. The student hears a dictation and then must reproduce it by noting it on the staff. When the dictation is complete, pressing RETURN will evaluate the input. Pressing RETURN before the student finishes noting a dictation, will cause the screen to freeze up. The user must then reboot the program.

A student can listen to the target dictation as often as needed. The play command allows the user to listen to what he or she has noted on the screen, making the comparison between the target and noted dictation easier.

Unfortunately, the internal speaker does not produce the clear sounds of a piano, making some of the tones harder to differentiate. The Apple version of the software offers an option of using the internal speakers or the Mountain Music synthesizer. The IBM version does not provide this choice.

Technically speaking, the use of bar lines in this program is perfunctory as it has no bearing on the evaluation process, but students should be encouraged to note their melodies with the appropriate measure demarcations. The absence of strong and weak beats produced by the computer makes this process challenging but worthwhile.

A possible problem is that the program grades strictly based on aural congruence, e.g., C sharp = D flat. Hence, although the student may have noted the example correctly based on how it sounds, the notation may be theoretically inaccurate. For example, if the note "G sharp" is used three times in one measure and the student places a "#" sign in front of each "G" he notes in that measure, the program disregards the fact that theoretically, the second and third "#" sign would be considered redundant and even syntactically incorrect.

The only other quirk noted was that the student has to specify the set number, and then the letter of the dictation (a-j). Due to the structure of the program, if the student selects letter "j" for example, he or she would only get practice with one exercise—the last—from that particular set; the questions do not cycle as they would with a question bank. There is also no utility for the instructor to evaluate students' performances.

Despite its drill-style format, this program is challenging because of the progression of skill levels involved. A student who completes the entire self-paced, step-by-step tutorial will get a rigorous workout and solid base in the skill of melodic dictation.

### Harmonious Dictator

| | |
|---|---|
| **Producer:** | Temporal |
| **Hardware:** | Apple II+, Apple IIe (enhanced), Apple IIc, Apple GS, Laser 128; minimum of 64K. |
| **Optional Equipment:** | Micro DAC board; stereo headphones; MIDI sound equipment. |
| **Price:** | $150.00 |
| **Audience:** | Grades 7-16 |

**Prerequisites:** Students need to be familiar with the symbols used for chord functions and to indicate chord inversions. Students need a basic knowledge of tonic, subdominant, and dominant chord functions. At the more complex levels of the program, students need to be familiar with chord construction and voice leading.

**Description:** This program is designed to provide aural practice in recognizing chord progressions, or harmonic dictation. Chord progressions are composed of chords of equal duration selected from Major and Minor keys. All diatonic chords, their inversions, selected seventh chords, and secondary dominants are used.

Each chord progression is noted using traditional Roman numerals for chord functions and numerical symbols for chord inversions. Chord progressions begin with tonic-dominant patterns proceeding to all diatonic chords, selected sevenths, and secondary dominants with inversions. The built-in, self-adjusting feature enables the program to generate unique progressions based on student performance.

Students can choose a starting level from nine levels of chord difficulty, with level 1 as the simplest level encompassing I, IV, V, ii (minor keys), and Level 9 as the most complex level consisting of $IV^{4/2}$, $vi^{4/2}$, secondary dominants. A choice can be made whether the computer should automatically adjust the difficulty level, or if the student should be locked into a particular level. A further choice determines if a student will work with Major Keys, Minor Keys, or with both.

**Evaluation:** In their effort to simplify the process of entering answers, some keys have a bi-level function. The first depression of the key will answer one portion of the question, depressing the key again will answer the second portion. At first, this bi-level answer input can be confusing and teachers should go over the process with their students.

### Interval Drillmaster

| | |
|---|---|
| **Producer:** | Conduit |
| **Hardware:** | Apple II plus, e, c, GS, 48K |
| **Optional Hardware:** | 80-column printer |
| **Price:** | $75.00 |
| **Audience:** | Grades 6-12 |

**Prerequisites:** Knowledge of major, minor, tritone, and perfect intervals.

**Description:** Students practice identifying and noting twenty-two levels of simple melodic intervals. Diagnostic features provide feedback related to student progress and correct errors. Students have the option of taking the levels as assisted drills or timed tests.

The package includes a student and teacher's guide, a program disk, and a back-up disk. The software is copy-protected.

While the program uses the internal speakers of the Apple computer, sound enhancement can be achieved with an ALF three-voice synthesizer board. The ALF board requires a small amplifier and speaker.

A management system allows a teacher to plan a sequenced path for a student or allow him/her to work on specific skill areas without having to meet any requirements. Lesson time averages 15-25 minutes.

The computer plays an interval and the student must select the correct response from a list of choices displayed on the computer screen. There is no limit to how many times the target interval may be repeated. Students have up to two tries to make the right response. On the first attempt, the program will indicate whether the response was too large or too small, allowing the student to try another answer. If the second selection is also incorrect, the program will compare the incorrect answer to the correct answer both visually and aurally.

Students need a working knowledge of major, minor, tritone, and perfect intervals. This program is designed as a supplement to regular music instruction.

**Evaluation:** The major drawback of this program is that it does not recognize enharmonics. For example, when it "plays" a minor 2nd, if the student notes "C" - "C sharp", *Interval Drillmaster* grades the answer as correct despite the fact that theoretically, it should have been noted "C" - "D flat." This means that although it is an excellent exercise from an ear training stand point, from a holistic approach this program could be misleading.

Since the many options are confusing, the teacher will need to demonstrate the use of the program. Enrolled students must follow a certain sequence when ending a session otherwise records won't be updated properly. When students sign on, the computer automatically takes them to the lesson they have not yet mastered.

When using the Apple's internal speaker, sound cannot be adjusted. Higher-pitched sounds are hard to identify which may affect the type of response given by the student.

When feedback is given, the program gives the student's response first before showing the right answer. For example, suppose the correct response is, "Perfect Unison," and the student answered incorrectly. The feedback received will be, "Your response: enharmonic major 2nd; correct answer: Perfect Unison."

Visual displays of staff, clefs, and notes in the Dictation section are very effective. The program utilizes the left and right arrows on the PC keyboard to place notes on the staff. It would have been easier and of greater educational value to use the up and down arrow keys. The way it is currently set up, it does not demonstrate the relationship of note placement on the staff and up/down motion on the keyboard.

In some ways, this program does not "drill" as much as one would expect it to. As an example, in the "Do Error Exercise" option, if the student's response is inaccurate for a Perfect 4th above "E," the program merely poses the exact same question back to the student. It does not pose exercises on that particular interval multiple times, as in five different sets of Perfect 4ths.

All in all, this is a program which will be beneficial in honing the specific skill of aural interval recognition and notation.

### Melodious Dictator

| | |
|---|---|
| **Producer:** | Temporal |
| **Hardware:** | Apple II+, Apple IIe (enhanced), Apple IIc, Apple GS, Laser 128; minimum of 64K. |
| **Optional Equipment:** | Micro DAC board; stereo headphones; MIDI sound equipment. |
| **Price:** | $150.00 |
| **Audience:** | Grades 4-16 |

**Prerequisites:** Familiarity with the piano keyboard, key signatures, and names of lines and spaces on the music staff.

**Description:** Provides students with an opportunity to note what they hear onto a treble clef staff. Students listen to a melody then note the pitches on a staff using an on-screen keyboard. The program is divided into various levels of difficulty with the simplest being a three-note pattern based on major and minor intervals, and the hardest level being a nine-note pattern using all harmonic intervals. Melodies used in the dictations are composed of notes which are equal in duration and are selected from diatonic scales within the $D^3$ to $G^4$ range.

The program adjusts to each student's skill level and generates its own melodic patterns, thus ensuring an endless supply of patterns for practice. Student input has been simplified to the use of three keys.

Immediate feedback is provided during each exercise and a cumulative progress report appears at the end of each session.

**Evaluation:** A pretty good program for melodic dictations. Students can select how long they want the phrase to be, thereby allowing them to slowly work up to longer and longer phrases, which is a definite plus and makes it appropriate for middle school use.

**Music FUNdamentals 1, 2, & 3**

| | |
|---|---|
| **Producer:** | Silver Burdett & Ginn |
| **Hardware:** | Apple II+ (48K), IIe, IIc, IIGS, Atari 800, 1200XL |
| **Additional Items:** | Keyboard overlays |
| **Price:** | $43.50 each |
| **Audience:** | Grades 2-8 |

**Prerequisites:** None

**Description:** This series of three music programs encompasses basic music skill development with the aid of a simulated piano keyboard and Presto, an animated robot.

Each of the three programs, *FUNdamentals, 1, 2, & 3*, comes with a program and back-up disk. The disks are copy-protected. A tour of the program is available for first-time users.

Since all three programs utilize the internal speaker of the Apple, the volume levels cannot be adjusted.

*Music FUNdamentals 1* focuses on reading and playing melodies in one octave. Students learn about high and low sounds, black-and-white keys, notes on the staff, steps, leaps, and repeats.

Lessons dealing with rhythm and melody combinations are covered in *Music FUNdamentals 2*. In this level, students use skills learned from the previous program as they work with bar lines, steady beats, and quarter, eighth, and half-note rhythm patterns. They work with a keyboard which spans from B below middle C, to D one octave above middle C.

Further rhythm and melody extensions are studied in *Music FUNdamentals 3* in lessons on whole notes, rests, sharps and flats, key signatures, meter signatures, ties, and dotted notes. At this level, the keyboard range is from B flat below middle C, to D flat one octave above middle C.

Students are not required to have prior musical experience to use this program. Each program takes the student step-by-step through logically sequenced lessons providing instruction and guided practice with each new concept presentation. Each level builds on the knowledge from previous levels. Therefore, students are encouraged to master each step prior to attempting new levels.

If a student is experiencing difficulties at any level, the lesson comes to an end, and the student is instructed to seek the assistance of his/her teacher. The program identifies the problem area and displays the information on the screen so that the student can tell his/her teacher which skill areas need extra remediation.

In order to use the keyboard effectively, students will need a keyboard overlay or rely on their memory of which keyboard keys correspond to specific piano keys. Playing the computer keyboard keys is definitely much harder than playing on a piano. Students who are already learning the piano, will find this method of "playing" more inhibiting in relation to finger movements.

**Evaluation:** This is an effective teaching tool geared toward beginning music students. It provides wonderful positive reinforcement and achieves the desired results through extensive drill and repetition—almost an essential aspect at that level of learning. In one experiment, even though the reviewer entered more misses than hits, the program displayed a message along the lines of "Good job—you found most of them!"

The program has an excellent error-tracking mechanism. If the student is having difficulty with a particular skill, the program automatically shuts down and gives the student an "error code" to relay to the teacher so extra drilling can be provided.

In the classroom which uses the Silver Burdett & Ginn series of music appreciation materials, this is the ideal counterpart. The teacher can then link the computer exercises to the appropriate

classroom lessons. The keyboard overlay, specific to this program, should be utilized in order to achieve maximum effectiveness for students at that grade level.

The one function which might be a source of confusion was the fact that in the program, notes are displayed from "A" to "G" whereas the overlay on the PC keyboard, and hence the command keys, is laid out in the same manner as the piano keyboard from "C" to "B."

The program has a "Play your own melody" feature which allows students to experiment with different sound combinations. It is an excellent "Beginning Composition" feature. As a side note, the graphics in this program, including "Presto," the guide, are entertaining and serve their functions well.

## Music Shapes

| | |
|---|---|
| **Producer:** | Silver Burdett & Ginn |
| **Hardware:** | Apple IIGS, 512K; color video monitor; mouse; 3.5" disk drive. |
| **Optional hardware:** | External speakers and headphones; MIDI equipment. |
| **Price:** | $129.95 |
| **Audience:** | Grades 3-16 |

**Prerequisites:** None.

**Description:** Package includes one disk plus one back-up disk. *Music Shapes* is an interactive tool to facilitate the learning of musical concepts and musical composition in a nontraditional way. Rather than manipulate real notes on a staff, students create music by going to the Pitch, Time, and Sound rooms to construct boxes of music which can then be manipulated through sequencing or stacking in the Flips, Lifts, and Shelves rooms.

The Pitch room enables students to create musical phrases of up to seven pitches per "box." Each musical phrase is stored in an on-screen box. There are four boxes in this room.

In the Time room, students can experiment with rhythm patterns of the notes, their duration, and the tempo for the entire phrase. These phrases can then be stored in one of the four boxes on the screen.

Instrument sounds for each box are selected in the Sound room. Further modifications of the sound are done through this room. Three different sound modifications are possible: Amplitude, to modify the tonal character of the "boxed" sound by redesigning the amplitude envelope; Volume, to adjust the volume of each note in the phrase; and Library files, allowing the user to assign new sounds to instruments. Only four different instrument sounds can be used in a musical composition, however, eight instrument sounds are available on the disk.

The Flips room allows students to hear three different variations of the boxed musical phrases and save. The screen is separated into four quadrants, with the original phrase in one quadrant, the inverted, retrograde, and inverted retrograde versions fill the other quadrants.

Arrangements of the on-screen musical boxes is done in the Lifts room. Students can designate a starting pitch for each musical box thereby enabling the same box to play at different pitch levels. The series of phrases can be put into yet three bigger "boxes."

Small and big boxes can be arranged and played sequentially or simultaneously in the Shelves room. This is done by placing boxes on one or all four of the shelves contained in this room.

The manual, which comes with the software, includes ideas of how this program could be used in instruction and also correlates the Music Shapes rooms with Silver Burdett & Ginn's *World of Music* textbook series.

**Evaluation:** The content is more appropriate for the lower elementary grade levels, however, the program characteristics are too complex for students in lower grades. Going from room to room, knowing where you are in relation to the rest of the program, and how to get to the desired locations from one's current position is difficult.

The amount of time that would be required to teach how to use the program, navigate through the various rooms, and produce desired results, might be better spent teaching students the real note symbols representing pitch and rhythm.

In the upper levels, the challenge would be for students to create actual tunes using this program. In the lower levels, *Music Shapes* can be used very effectively in a group setting or as a classroom demonstration with sufficient teacher guidance, but it is imperative that the teacher spend some time getting to know the program inside out.

## Music Theory

**Producer:** MECC
**Hardware:** Apple family of computers, 48K
**Price:** $59.00
**Audience:** Grades 4-12

**Prerequisites:** Each level assumes some content-specific background knowledge in music.

**Description:** This program is designed to provide additional practice for students receiving musical instruction. Topics include: music terminology, musical notation, rhythm, pitch, scales, intervals, chords, and triads. The package contains a program disk, back-up disk, and a teacher's resource manual.

Eighteen drills on the disk feature ear-training in recognizing missing notes, identifying basic rhythm patterns, and distinguishing between certain arpeggiated sevenths.

Students choose the skill area with which they wish to work from the main menu. On-screen instructions are available. The program is flexible in allowing students to choose the type and quantity of problems they would like to try.

If an incorrect response is given more than once, the computer provides immediate feedback of, "No, the correct answer is..."

The internal speaker of the Apple computer is used for these exercises.

In the *Name the Note* exercise, five levels of difficulty are available. The *Note Types* exercise covers rests, whole, half, quarter, and eighth notes, and the number of beats each one receives.

In the *Rhythm* exercise, students practice recognizing rhythm patterns. Choice of three levels of difficulty are available. The program contains sixty stored patterns, twenty for each level of difficulty. The computer selects one of the patterns at random thus ensuring not all exercises are the same. Feedback is provided in the form of number of questions answered correctly based on number of questions attempted. A percentage score is also calculated.

The *Rhythm Play* exercise displays a pattern on the screen. The student must then play the pattern on the keyboard. On-screen instructions direct the student as to which keys need to be depressed. Users can select from three levels of difficulty.

The exercise on *Sevenths* provides ear training in recognizing various types of seventh chords. Students can choose if they want their exercises to include half and fully diminished chords, and whether or not they want to use the same or different root to be used in all exercises. This exercise also keeps track of the number of times a student needed to hear the chords. An average is calculated for the whole exercise. One incorrect response is allowed.

**Evaluation:** A list of menu items covering each of the eighteen drills is not provided in a chronological sequence. It is recommended that the teacher specify which item students should select. On-screen instructions do not provide explanations nor attempt to tutor the user. A student attempting a level not commensurate with her or his ability could be frustrated. The teacher needs to provide the lesson structure and demonstrate how each lesson works.

Since there is no easy way of escaping a lesson once it has started, a student selecting the wrong lesson will have to attempt all the problems. There is not even a way of exiting a lesson midway other than turning off the computer.

In *Rhythm Play*, the teacher needs to demonstrate how that exercise works. The students see a pattern on the screen and must tap it out on the keyboard. As they tap out the rhythm pattern, no sound is produced by the computer, however, the program is monitoring each keystroke. After the pattern is tapped in, the program either says "correct " or "incorrect." If an incorrect response is tabulated, the incorrect pattern is displayed beneath the target pattern.

The manual provided with the disks is quite good—it provides goals, objectives, teaching strategies, background information, and recording sheets.

## Note Blaster

| | |
|---|---|
| **Producer:** | Temporal |
| **Hardware:** | Apple II+, Apple IIe (enhanced), Apple IIc, Apple GS, Laser 128; minimum of 64K. |
| **Optional Equipment:** | Micro DAC board; stereo headphones; MIDI sound equipment. |
| **Price:** | $30.00 |
| **Audience:** | Grades 2-6 |

**Prerequisites:** None

**Description:** *Note Blaster* is an animated note-reading game where the objective is to survive a note missile attack in outer space. A series of note missiles, traveling along the lines and spaces of the staff, are fired at a rocket located at the end of a grand staff. Typing in the letter names represented by the note missiles prevents them from hitting the rocket.

After seven hits, the rocket will explode. If the user survives the session with the rocket intact, the rocket will blast off with some fanfare. A 'hit meter' at the top of the screen monitors how many hits the rocket sustained.

Prior to playing, students may choose the game mode, the clef, the speed, the length, and the level of play.

The built in management system keeps track of student responses. At the completion of a game a student can view reports. Results are presented in bar-graph form with a piano keyboard as the abscissa. A bar above a pitch on the keyboard shows how well the student responded in that area.

The student may select to play with Treble clef notes, Bass clef notes, or both. There are two modes of play: *Note Missiles* displays moving notes at various positions on the staff which the student must attempt to "shoot" by using the "A" to "G" keys on the keyboard. (CAPS LOCK must be enabled as only "A" to "G" keys are activated.) *Pitch Names*, being the easier level, provides the student with the letter name of each note as well. If the student enters the wrong letter name, the computer plays a "Zzb" sound. If the answer is correct, the note disappears from the screen.

There are eight speeds of play. The fastest level is virtually impossible. (This is another program which provides for practice in touch typing.) Levels one to four determine how many missiles

approach at one time. Length of game ranges from 25 to 250 missiles. Seven hits are allowed as a per game maximum.

**Evaluation:** Though this animated note reading program is targeted toward young children, the manual is geared more for the older student. While the end of the game report presents results in a bar graph form, most students at even the fourth grade level have a hard time understanding bar graphs and what they represent.

While the program states that the user can quit from the Game screen, the reviewers did not find this feature to be functioning, and had to turn off the computer to end the game.

The program is a fun and easy way to reinforce note reading skills. Students can slowly work up to identifying four notes at a time. This is a simple game and trains students to recognize notes rapidly as an alternative to flashcards.

## Practical Music Theory, Complete

| | |
|---|---|
| **Producer:** | Alfred |
| **Hardware:** | Apple II, Commodore 64, Atari, IBM, Yamaha C1, and Macintosh |
| **Price:** | $119.95 Apple II, Commodore 64, Atari, IBM and Yamaha C1; $149.95 Macintosh |
| **Audience:** | Grades 7-12 |

**Prerequisites:** A basic knowledge of music.

**Description:** Volume 1 includes lessons on: The staff, Treble clef, Bass clef, Higher or Lower, Note names, Grand staff, Ledger Lines, Which clef, Whole/half/quarter rests, Beats and Bar lines, Missing Notes, Time signatures, Beats and Bar lines, Missing Notes, Dotted Half Notes, Which Time Signature?, Rhythm Composition, Ties and Slurs, Note Values, Breathing Points, Beats and Bar Lines, Repeat Signs, Eighth Notes, Eighth rests, Dotted quarter notes, and Which Time Signature?

Volume 2 includes topics on the following: Whole and Half Steps, Accidentals, Chromatic Scales, Major Scales, Key Signatures, Circle of Fifths, Name the Major Key, How Many Sharps and Flats, Dynamics, D.C., D.S., Coda and Fine, Other Symbols and Terms, Match the Definition, Sixteenth Notes, Missing Notes, Sixteenth Rests, Missing Notes, Dotted Eighth Notes, Adding sixteenths, Intervals, Diatonic Intervals, Chromatic Intervals, 3/8 Time Signature, 6/8 Time Signature, Beats and Bar Lines, Common and Cut Time, and Triplets Syncopation.

Volume 3 includes: Major Chords and Triads, Spelling Major Triads, Chords Related to a Key, and Chord Progressions.

The package contains a textbook, program, and back-up disks. The program is correlated with Alfred's *Practical Music Theory* textbooks.

**Evaluation:** A very good self-paced tutorial program to acquire knowledge in general music theory. The program presents concepts clearly and concisely allowing the user to practice each new step.

Volume 1 and volume 2 can be used with middle and high school students learning music theory. However, it is recommended that these activities be used after formal instruction has been received. Volume 3 should only be used with advanced music students in high school or college. It should be noted that students do need regular music instruction to go along with this courseware, otherwise they will not be able to grasp all of the concepts on their own.

Weaknesses include:

- More complex concepts are not given as much instruction
- Rather than insisting on a correct answer, a student should be allowed the option to go on even after missing the same question three times
- Students cannot request that some of the rhythmic patterns be repeated. From a student's standpoint this is a real minus. Hearing patterns repeated several times (or, as many as the user needs), helps students develop those much-needed aural skills, especially when using tutorial programs.

**Sir William Wrong Note** version 2

| | |
|---|---|
| **Producer:** | Temporal |
| **Hardware:** | Apple II +, Apple IIe (enhanced), Apple IIGS, with minimum 64K. Micro Music DAC board or MIDI sound equipment are required. |
| **Price:** | $150.00 |
| **Audience:** | Grades 6-16 |

**Prerequisites:** Students should have a basic knowledge of music notation and chord qualities.

**Description:** This is a program designed to develop aural wrong note detection in the harmonic context of four-voice chords. The program allows students to practice detecting pitch errors with any combination of chord types—basic major and minor triads through seventh chords and the augmented sixth chord.

The program plays a chord with a wrong note. The correct visual notation of the chord is displayed on the screen. The student must identify the note played incorrectly by first specifying the voice where the wrong note occurred: soprano, alto, tenor, or bass. Upon entering one of these choices, four numbered measures appear after the chord, each containing one note. The student must identify the actual wrong note played by the computer. Answers are entered by typing the number corresponding to the measure with the incorrect note.

Students may request to hear the chord played again with the correct note or they can choose to repeat it with the wrong note. Every response receives some form of feedback. Positive feedback is provided when answers are correct and neutral feedback occurs when incorrect answers were keyed in. Neutral feedback is on the order of " Sorry, that was incorrect" or "No, the answer is..." A student has three tries in which to type in a correct answer for identifying the voice where the wrong note occurred, and two tries in selecting the wrong note.

*Sir William Wrong Note* allows students to exit out of an exercise at any time.

Upon exercise completion, students are presented with several options. They can choose to rehearse some more, do a new exercise with the same chord type, do a new exercise with a new chord type picked randomly, view their report card, or go back and change categories completely.

The program comes with one copyrighted disk, student task sheets, and a spiral-bound manual. The teacher can customize the disk to only list available sound sources and have the program either record or not record student responses.

**Evaluation:** On-screen instructions are a little difficult to understand until the student gets into the actual program. From there on, the program is pretty much self-explanatory.

The student enters the "Wrong Note" with the computer keys 1, 2, 3, and 4 used to denote the Soprano, Alto, Tenor, and Bass instead of the S, A, T, and B keys. Pitches were slightly difficult

to distinguish on the computer speaker, however, it is this same reason that makes it a good ear training program.

The program seems to play chords at different pitches than as noted (one octave higher) and not in the same inversion.

## Sketch the Scale version 2.0

| | |
|---|---|
| **Producer:** | Temporal |
| **Hardware:** | Apple II+, Apple IIe (enhanced), Apple IIc, Apple GS, Laser 128; minimum of 64K |
| **Optional Equipment:** | Micro DAC board; stereo headphones; MIDI sound equipment |
| **Price:** | $50.00 |
| **Audience:** | Grades 3-12 |

**Prerequisites:** This program assumes students have a basic knowledge of commonly used scales, pitch notation, accidentals, ledger lines, and clefs. The documentation recommends that this program be used in addition to, rather than instead of regular music instruction.

**Description:** This program is a drill-and-practice game in writing the most commonly used musical scales. The options—Major, Natural Minor, Melodic Minor, Chromatic, and Pentatonic—cover a comprehensive and essential range of scale notation skills. The objective is to accumulate as many points as possible before the notes go up in smoke. When all the notes have turned into puffs of smoke (the puffs look more like globs, than smoke) the game ends and a scorecard appears on the screen. Information is provided on the total number of rounds attempted, total number of noted scales and pitches, points accumulated, number of bonus points awarded, and the overall total score. The total score is then compared with the highest score received. The name of the high scorer is also displayed on the screen.

The computer can select a starting note or randomly generate a pitch based on student-specified parameters. When the program is used in the Tutor mode, a student may take as long as necessary to answer the questions. If the program is in the Game mode, the user gains points by answering quickly.

After two incorrect responses, instructions appear at the bottom of the screen instructing the student to press the ESCAPE key to see the answer. To move to the next lesson, the correct answer must be typed in. Immediate feedback to responses usually takes the form of a "happy" sound for right answers, and a "negative" sound for wrong answers along with text that either says, "Correct," or, "You have the wrong letter name."

The instructor has to customize lesson plans for each student. A number of lesson pathways are possible. Unfortunately, when a teacher-defined preset is chosen, the screens of text which appear are hard to read because of the thick/thin font styles.

Sound effects can be turned on or off prior to program execution. Once specified, the sound cannot be turned off or on again unless the user returns back to the main menu.

In the Tutor Mode, on-screen help is available. The note numbers of a scale appear at the top of the screen with a ^ designating notes which get a half step. With the grand staff clef option, students get a chance to practice noting both the treble and bass clefs. No on-line help is available with the grand staff option.

At the end of each session, a "report card" appears on the screen showing how the student performed during the lesson. It lists the clef and type of scale which was selected, total number of scales attempted, total notes noted, number of wrong pitch names, number of wrong accidentals, total number of tries, and an overall percentage score.

**Evaluation:** This package can be motivating only if students have the requisite skills. It is an "absolute program" with an absolute set of answers. In this context—scale notation—this works very well because there is generally but one way to note a given scale. For example, in "sketching" a chromatic scale, the program requires that students use either sharps or flats. Failing to do so, as in the case of enharmonics, means a "wrong letter name" message is displayed.

Reviewers experienced several frustrations in using this program. The chief frustration was the fact that the Game mode was entirely a test of manual dexterity on the PC keyboard. This is one of the few programs that uses the letters "A" - "G" on the PC keyboard to represent musical letter names. One needs to be a highly-skilled touch typist to enter the letters of the scale in the correct sequence, not to mention the keys which represent sharps and flats as needed, and beat the clock at the same time. Moreover, if the student were to jump ahead of the computer, the keystroke is often not registered, thereby affecting the score.

In the tutor mode, as the student types in the correct notes, he or she hears the correct tones. In Game mode, this is not the case. Rather, the program produces "zaps" which are distracting. The default allows for only one scale per "game," i.e., one clef, one mode of scale and start note which is pre-chosen. (Note: the default can be changed by selecting "Your Choice"). The student MUST get each note correct before going on to the next. On completion of each exercise, the correct scale is played as a recap.

**Theory Sampler**

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|---|---|
| **Producer:** | Temporal |
| **Hardware** | Apple II+, Apple IIe (enhanced), Apple IIc, Apple GS, Laser 128; minimum of 64K; Micro DAC board |
| **Optional Equipment:** | stereo headphones; MIDI sound equipment. |
| **Price:** | $125 |
| **Audience:** | Grades 3-16 |

**Prerequisites:** Knowledge of notes, scales, and chord construction.

**Description:** *Theory Sampler* is a collection of programs designed to provide students with practice in basic aural and cognitive skills. This collection includes *Building Scales*, which gives students practice in building scales and modes, *Identifying Scales* provides practice in recognizing aurally-presented modes and scales, *Building Triads* provides an opportunity to practice building triads—Major, Minor, Diminished and Augmented, *Building Seventh Chords* allows practice in building all of the seventh chords—Major/Minor, Minor/Minor, Half-Diminished, and Fully-Diminished, and *Identifying Chords* aids in recognition of aurally-presented triads and seventh chords.

The programs assume a basic knowledge of music and music notation, and certainly the varying complexity levels of each program make this software useful not just with the beginning student of music, but also with the advanced student. A micro DAC Board is required for certain programs.

As is generally true of Temporal products, on-screen prompts enable the user to navigate through the programs without too much difficulty. Feedback, whether or not the management system is turned on, always provides detailed information about how the student performed on various skills.

**Evaluation:**

**1. *Identifying Scales.*** The program has good on-screen instructions. The student may repeat the scale to hear it as many times as is needed. Provides for good practice in any or all of the following scales: Major, Natural Minor, Harmonic Minor, Melodic Minor, Dorian, Lydian, Mixolydian, Phrygian, and Locrian. (Mode usage should be encouraged.) The tempo can be set between 10 to 180. When correct, the program plays a tune in the mode of that particular scale as

an example. This is an outstanding feature, as it trains the ear to the scale pitch combinations and the context within which they may be used.

**2. *Building Scales.*** Once again, first-rate on-screen instructions and great feedback and positive reinforcement. In the evaluation screen the student may type "K" to visualize the scale with the key signature instead of accidentals. Typing "K" again brings it back to its original form (with accidentals). The program plays scale, displays the mode (Major, Minor or Modes to 5 sharps and flats), then the student notes the scale. This provides for extensive ear training practice.

**3. *Identifying Chords.*** To hear this program, the student may select "A" for arpeggiated, or "B" for block. There are two sections to this program—triads or seventh chords. The different levels increase in difficulty as the variety of chords increases.

Triads
Level 1: Major, Minor - root position.
Level 2: With the addition of augmented triads.
Level 3: With the addition of first inversions (6/3).
Level 4: With the addition of second inversions (6/4).
Seventh Chords
Level 1: MM, Mm, mm—root position.
Level 2: With the addition of half diminished and fully diminished sevenths.
Level 3: With the addition of first inversions (6/5).
Level 4: With the addition of second inversions (4/3).
Level 5: With the addition of third inversions (4/2).

**4. *Building Triads & 5. Building Seventh Chords.*** These exercises can be by quality or function. By quality the student is asked to spell the first inversion in the key of B flat minor. By function the student is asked to spell the subdominant (IV) in the key of A flat Major (root position) Questions are posed randomly. If a wrong attempt is given, the program automatically reveals the correct answer.

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300-120th Ave NE
Bellevue, WA 98005
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# OTHER RESOURCES

*The MTNA Guide to Music Instruction Software*
MTNA (Music Teachers National Association)
617 Vine Street
Suite 1432
Cincinnati, OH 45202

Alf Synthesizer Board
Alf Products, Inc.
1448 Estes
Denver, CO 80215

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